

### REMARKS

This application has been reviewed in light of the Office Action dated April 23, 2003. Claims 1-4, 11-13, and 35-37 are pending in this application. Non-elected Claims 5-10 and 14-34 have been cancelled, without prejudice or disclaimer of subject matter. Claims 35-37 have been added to provide Applicant with a more complete scope of protection. Claim 1, which is the only independent claim, has been amended to define still more clearly what Applicant regards as his invention, in terms that distinguish over the art of record. Applicant notes that Claims 2-4 and 11-13 have been amended as to matters of form only and those amendments do not, in any way, narrow the scope of any of those claims. Favorable reconsideration is requested.

Initially, Applicant notes that a Supplemental Information Disclosure Statement is enclosed herewith.

The Office Action rejected Claims 1-4 and 11-13 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,499,362 (Martin) in view of U.S. Patent No. 4,727,234 (Oprysko et al.). Applicant respectfully traverses this rejection.

Applicant submits that amended independent Claim 1, together with the remaining claims dependent thereon, are patentably distinct from the proposed combination of the cited prior art at least for the following reasons.

The aspect of the present invention set forth in Claim 1 is a laser working apparatus for effecting optical ablation working by irradiating a work article with a laser light with a pulse emission time not exceeding 1 picosecond from a laser oscillator capable of continuous emission of a light pulse of a large energy density in space and in time, with the pulse emission time not exceeding 1 picosecond. The laser working apparatus for effecting optical ablation working includes a light intercepting control means, disposed in a light path of laser light with the pulse emission time not exceeding 1 picosecond from the

laser oscillator to the work article, for selecting a state where the laser light with the pulse emission time not exceeding 1 picosecond can be irradiated to irradiate the work article or a light intercepting state where the laser light with the pulse emission time not exceeding 1 picosecond cannot be irradiated to the work article.

The light intercepting control means is heated by receiving irradiation of laser light with the pulse emission time not exceeding 1 picosecond at the light intercepting state. The laser light, irradiating to and absorbed by the light intercepting control means, with the pulse emission time not exceeding 1 picosecond, does not reach an ablation threshold value of energy density at which the work article is worked.

Important features of Claim 1 are that the laser working apparatus uses a laser light of continuous emission of a light pulse of large energy density in space and in time with a pulse emission time not exceeding 1 picosecond. Such a laser light has a significantly high energy density so that working can be made in a manner that a material constituting irradiated portions of the work article are removed by condensing light with a lens.

On the other hand, the stable oscillation of the laser light of continuous emission of a light pulse of large energy density in space and in time with a pulse emission time not exceeding 1 picosecond cannot be obtained by the laser oscillator even if the temperature of the oscillator is changed slightly. It takes a very long time to obtain a stable laser oscillation after the power supply is turned on. Accordingly, when stable oscillation is obtained after the power supply is turned on, it is necessary to make continuous laser oscillation all the time. As a result, the present invention as recited in Claim 1 includes the feature of a light intercepting control means, which selects a state where the laser light with the pulse emission time not exceeding 1 picosecond can be irradiated to irradiate the work article or a light intercepting state where the laser light with

the pulse emission time not exceeding 1 picosecond cannot be irradiated to the work article.

Other important features of Claim 1 are that the light intercepting control means is heated by receiving irradiation of laser light with the pulse emission time not exceeding 1 picosecond at the light intercepting state, and where the laser light, irradiating to and absorbed by the light intercepting control means, does not reach an ablation threshold value of energy density at which the work article is worked.

Martin, as understood by Applicant, relates to a rotary beam chopper with a continuously variable duty cycle. The Office Action at page 2 states that Martin teaches a laser working apparatus for effecting optical ablating working with a pulse emission time not exceeding 1 picosecond and asserts that Figure 4, item 10, provides support for this assertion. Applicant submits that Figure 4, item 10, merely shows a structure for obtaining intermittent light by making a laser light pass between teeth of a rotating gear.

Oprysko et al., as understood by Applicant, relates to a laser-based system for the total repair of photomasks. The Office Action states that Oprysko et al. teaches a control means but any discussion of this control means is moot in light of the amendment to Claim 1.

Applicant submits that, at least for the reasons discussed above, the proposed combination of Martin and Oprysko et al., assuming such combination would even be permissible, would still fail to teach or suggest the laser working apparatus that uses a laser light of continuous emission of a light pulse of large energy density in space and in time with a pulse emission time not exceeding 1 picosecond, and the light intercepting means, as recited in Claim 1. Accordingly, Applicant submits that Claim 1 is patentable over Martin and Oprysko et al., taken separately or in any proper combination.

The other claims in this application, including new Claims 35-37, depend

from Claim 1 discussed above, and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual consideration or reconsideration, as the case may be, of the patentability of each claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

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